

# EUROPEAN PATENT OFFICE

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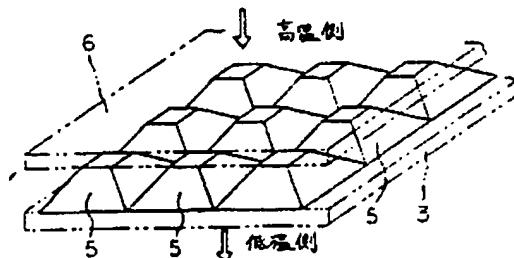
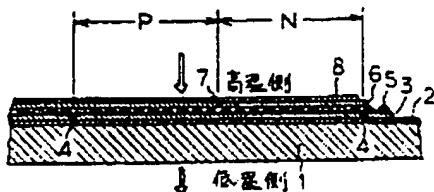
APPLICATION DATE : 09-11-89  
 APPLICATION NUMBER : 01289942

APPLICANT : JAPAN ATOM POWER CO LTD:THE;

INVENTOR : KISHIOKA KAZUHIKO;

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TITLE : THERMOELECTRIC GENERATING ELEMENT



**ABSTRACT :** PURPOSE: To improve thermal efficiency of a thermoelectric element by employing a semiconductor having temperature dependency, higher in electrical conductivity than in thermal conductivity, as the thermoelectric material.

CONSTITUTION: A thermoelectric generating element is composed by sequentially bonding an electrical insulator 2, an electrode 3, an insulator 4, a thermoelectric material 5 and the like onto a substrate 1. The thermoelectric material 5 is formed into a truncated pyramid so that the cross sectional area for passing electricity and heat is small at the high temperature side and increases gradually toward the low temperature side. A semiconductor having temperature dependency, considerably higher in the electrical conductivity than in the thermal conductivity, is employed as the thermoelectric material 5. Although the electrical conductivity lowers in high temperature zone due to reduction of cross sectional area, the ratio of the thermoelectric element increases as a whole thus increasing the performance factor. By such arrangement, thermal efficiency is improved.

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